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## **Evaluation of the Paper Review and Publication Process of the Transportation Research Board**

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**Jon M. Williams**  
*Transportation Research Board*

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Transportation Research Board  
National Research Council  
2101 Constitution Avenue, NW  
Washington, DC 20418

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Jon M. Williams  
Transportation Research Board

# EVALUATION OF THE PAPER REVIEW AND PUBLICATION PROCESS OF THE TRANSPORTATION RESEARCH BOARD

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**Jon M. Williams**

*Transportation Research Board*

## SUMMARY

This paper documents a study performed to evaluate the paper review and publication process of the Transportation Research Board (TRB), in particular, the peer review procedures. The study addresses the following research questions:

- For academicians, does publication of research in a TRB publication have the same value for promotion and tenure as publication in other journals?
- Does the TRB paper review and publication process need to be improved? If so, how?

A literature review discovered relevant information. The development of the peer review process has been piecemeal, and there are no universally accepted standards and procedures. Peer review has two different major uses: grading of grant applications to assist in funding decisions and reviewing research papers for journal publication. For both of these, there is often a perception among those being reviewed that the process is biased by cronyism.

In 1987, there was a survey of transportation journals conducted by the Council of University Transportation Centers (CUTC) that included information on TRB publication procedures. The survey found that CUTC member institutions gave TRB publications a mean quality rating of 2.7 (above average) on a four-point scale ranging from 1 (very low) to 4 (very high). Compared with twelve other journals, TRB publications rated lower on three quality indicators: time allowed to complete reviews, paper acceptance rate, and attention to review of revised papers. (Since 1987, TRB has improved its paper acceptance practice by lowering the percentage of papers accepted.)

The study documented in this paper employed four research techniques: in-depth interviews with university faculty members who have long experience with TRB, a mail-back survey of TRB university representatives (with 81 respondents), a simple analysis of peer review quality for 421 peer reviews of papers submitted to TRB, and comparison of review practice between TRB and other journals.

The research found that 73 percent of survey respondents believe TRB publication has value equal to or greater than publication in other peer-reviewed journals for tenure and promotion purposes. Fifty-seven percent of schools rate TRB publication as having unequivocally greater or equal value, 16 percent of schools believe TRB publication has equal value but others at the school may not agree, and 27 percent of schools say TRB publication has less value. A peer review quality analysis found that 82 percent of the 421 paper review forms submitted appeared to provide complete information to the paper author while 18 percent of the forms did not. Comparison with practices at other journals indicates that some improvement might be needed with respect to the amount of time allotted for paper review, as well as to the attention to paper revisions. Comments from the mail-back survey indicate that many respondents are reasonably satisfied with the TRB

review and publication process, and many suggested ways in which the process could be improved. These findings indicate that the process is fundamentally sound; while it could benefit from some procedural upgrades, it is not in need of a complete overhaul.

According to study results, the TRB paper review and publication process, utility of the publications, and client satisfaction could be improved in the following ways:

- Provide better information to universities about TRB's review and publication procedures and affiliation with the National Academy of Sciences.
- Increase the time available for paper review.
- Improve instruction, training, and feedback for paper reviewers.
- Develop the paper revision process.
- Adopt a double-blind review procedure.
- Ensure that TRB publications are included in relevant citation indexes and are easily accessible in research libraries.
- Create an ongoing, external review and improvement process for TRB paper review and publication.

## BACKGROUND

As a unit of the National Research Council, which serves the National Academy of Sciences and the National Academy of Engineering, TRB's purpose is to stimulate research concerning the nature and performance of all modes of transportation and to encourage the application of research findings. TRB's program is carried out by more than 270 committees, task forces, and panels, comprising about 3,300 volunteers who are administrators, engineers, social scientists, attorneys, educators, and others concerned with transportation; they serve without compensation.

An important element of TRB's program is the publication of technical papers. In a typical year, TRB receives approximately 1600 research papers addressing all aspects of transportation planning, design, construction, and operations. These papers are peer reviewed by members of TRB's 180 standing committees in a process that is managed jointly by TRB staff and committee chairs. The review process determines whether or not papers should be revised, presented at the annual meeting, and ultimately published. Publication takes place in TRB's journal series, *Transportation Research Record: Journal of the Transportation Research Board*, which gathers papers on similar topics into volumes ranging from five to twenty-five papers. Transportation Research Records (TRR) are not periodicals and have no volume and series numbers or dates on the cover. About 600 papers are published every year—40 percent or less of those received.

This document evaluates the TRB paper publication process and includes emphasis on paper review. The primary clients are the senior staff of TRB and the TRB Division A Council. Stakeholders include future paper authors, academicians seeking tenure or promotion, and the entire research community that benefits from TRB's publications.

## LITERATURE REVIEW

A review of the relevant literature has proved useful for understanding the nature of scientific and scholarly publication, the origins and foundation of the peer review process, and the methods and findings of other evaluations of peer-reviewed publication.

There are two distinctly different uses of peer review—reading and grading grant applications to assist in funding decisions and reviewing articles for journal publication. In discussing these two purposes, the literature uses interchangeably the terms referee and peer review; only peer review is used in this study. Burnham (1992) has conducted an extensive study of the development of scientific journals and their paper review procedures. He finds that “peer review of publications developed independently of peer review of grants so that the development of one kind of peer review had little to do with development of the other.”

Lundberg (1992) and Burnham note that scientific journals first appeared in the seventeenth century. Chubin and Hackett (1990) and Burnham offer that the first instance of peer reviewing probably occurred in 1752 when the Royal Society of London formed a “committee on papers” to review all papers to be published. Some authors assume that the growth of peer review practice and standards followed in an orderly manner from these early beginnings. However, Burnham, who has made a thorough study of the history of peer review practice, finds that peer review of papers for scientific journals did not become common until the twentieth century. At that time, the increased volume of papers received and the growth of specialization in most fields forced journal editors to look for outside assistance in reading submitted papers and deciding which should be published. In fact, the first discovered use of the term referee is in 1902, and peer review does not appear until 1971. Burnham’s most significant finding (from the perspective of this study) is that peer review developed in a discontinuous, piecemeal fashion with each journal working out its own methods for its own purposes. These varied methods, he says, explain “...the great diversity in current peer review practices as they work out in the real world of journal publishing....”

A number of authors discuss problems associated with the paper review process, Weeks and Kinser (1992) summarize:

- Cronyism among authors, reviewers, and editors—the so-called “old boys network,”
- Author authenticity—did all persons listed as authors actually work on the paper,
- Failure of referees to carefully review papers,
- Incorrect or absent citations,
- Conflict of interest between reviewers and authors, and
- Fraud and plagiarism identification.

Evans (1994) adds:

- Time—the major delay in publication is often the peer review process, and
- Reviewer disagreement on the merits of papers.

There are publications of standards for peer review by individual journals as well as general sources such as *The Scientific Journal: Editorial Policies and Practices* (DeBakey, 1976). DeBakey addresses the basic issues that editors face and presents recommendations. These basic issues are included in Appendix D.

A number of evaluations of specific peer review processes have been conducted. Cole, Rubin, and Cole published the landmark *Peer Review in the National Science Foundation: Phase One* (1978), followed by Cole and Cole's *Peer Review in the National Science Foundation: Phase Two* (1981). Phase one of the National Science Foundation's

(NSF) peer review of grant proposals began with a detailed study of how peer review is conducted at NSF. The three data collection techniques employed were in-depth interviews with scientists and NSF program directors involved with peer review; a study of data collected from a sample of applicants in one year, of whom half were successful and half were not; and a study of the complete files, including all reviewer comments, of a sample of applicants in one year. Phase one of the study also found that reviewer scores were the prime determinant of grants awarded, and that there was little or no correlation between reviewer scores and applicants' previous scientific performance, institutional affiliation, age, academic rank, geographic location, or source of Ph.D. training.

Phase two's purpose was to find an independent measure of the quality of the program. This was accomplished by taking a sample of grant proposals that had been reviewed by the NSF peer review process and having them reviewed by a group of scientists that were not selected by NSF. Additionally, some of the proposals were blinded by removing identifiers of authorship. Phase two corroborated the findings of phase one. Generally the independent reviewers concurred with the NSF reviewers. Seemingly the blind proposals had little impact on the decision, but it was also very difficult to successfully blind grant applications.

In comparison, Peters and Ceci (1982) conducted an experiment in which they submitted already-published articles to psychological journals but in a disguised form coming from non-prestigious authors and institutions. Almost 90 percent of the previously published articles were rejected, and only 3 of 38 editors and referees detected the deceit.

The study most germane to this paper is the *Final Report: Council of University Transportation Centers Survey of Transportation Journals* by Hauser, Hicks, Morlok, and Schofer (1987). This was requested by TRB's executive director to study the level of university participation in TRB publications and activities, as well as recognition of such participation, and to compare TRB publication procedures and practices with those of other major serial publications devoted to transportation research.

To accomplish the first task, the 31 member schools of the Council of University Transportation Centers were surveyed, as well as 61 members of the departments that have transportation faculty. The findings follow:

- On a four-point scale ranging from 1 (very low) to 4 (very high), the quality of TRB publications received a mean rating of 2.7. Respondents were not asked to compare TRB with other publications.
- TRB publication makes a significant contribution to promotion and tenure in engineering fields, but only a moderate contribution in other fields.
- Among 12 transportation-related journals, TRB is less oriented toward academicians than many other journals.
- Compared with the other journals, TRB rates below average on indicators that are usually associated with paper quality. The indicators are
  - Shorter review period than other journals,
  - Higher paper acceptance rate, and
  - Less attention to review of revised papers,

This study took place in 1986, and some of the information is clearly outdated. For example, the TRB paper acceptance rate in 1986 was 72 percent; in 1999 it was below 40 percent.

## OBJECTIVES, SCOPE, AND METHODOLOGY

The objective of this study is to evaluate the quality of the TRB paper review and publication process, and if it is warranted, to present options for program changes that might improve the process. Following are the principal questions to be answered:

- Does the paper review and publication process need to be improved? If so, how?
- How does the TRB peer review process compare with the process of other publications?
- For academic tenure and promotion, does publication in a TRR have the same value as publication in other peer-reviewed publications? (This is an outcome measure.)

TRB is an organization that brings together academicians and practitioners to define and discuss common transportation research and implementation issues. For this study, it was decided to focus on the academic members of the TRB constituency because most of them have direct, ongoing experience with research publication; consequently, they may be better able to gauge the quality of review practice. Also, the academic profession requires making the kinds of objective evaluations that were requested by the surveys on which this evaluation was based.

To answer the primary questions, the following research was performed:

- In-depth interviews with six faculty members with lengthy TRB committee and paper review process experience,
- A mail-back survey of TRB university representatives at 152 universities,
- An analysis of peer review quality for 100 TRB peer-reviewed papers, and
- A comparison of peer review practices between TRB and other journals.

This four-pronged approach evaluates the subject from multiple perspectives. The following section discusses more detailed research design and data collection and analysis.

## RESEARCH DESIGN AND DATA COLLECTION AND ANALYSIS

### In-Depth Interviews

Six academicians that have long experience with TRB were selected to be interviewed. The selection process included discussions with various TRB staff to ensure that the prospective interviewees represented an adequate sample of TRB committee activities. A questionnaire (Appendix A) was used as a guide for the 15–30 minute telephone interviews and served as a prototype for the questionnaire used in the mail-back survey. The interviews provided information to make the mail-back survey more effective. For example, it was discovered that a question on “the value of TRB publication for tenure and promotion” elicited a clear and strong response. This became the core of the mail-back survey.

### Mail-Back Survey

The mail-back survey (Appendix B) was designed to gather basic information about

- The extent of transportation studies at the university, measured by the number of current Masters and Ph.D. students;



- The extent to which the respondent has been involved with TRB and its paper review process;
- The value of TRB publication for tenure and promotion;
- The basis for this assessment of value; and
- Suggestions for how the TRB paper review process might be improved.

The last two questions were open-ended, and were manually coded by the researcher. The survey information was entered into Microsoft Excel, and tabulated using spreadsheet analysis.

The survey was addressed to the TRB university representatives at 152 U.S. universities, and was mailed with a cover letter from Robert E. Spicher, Director, Technical Activities Division, TRB. (Non-U.S. universities were excluded due to the length of response time and possible cultural differences with respect to paper review.) Respondents' names and addresses were appended to the back of each questionnaire for identifying those returned, although the survey guarantees confidentiality. A stamped, TRB-addressed envelope was included to encourage survey response.

Of the 152 questionnaires mailed, 87 were returned—a 57 percent response rate. Explanations of non-response include sabbaticals, lack of time (the survey was conducted at the end of spring semester, which is a very busy time at most universities), and on the part of some school representatives, lack of experience with TRB publication.

### **Analysis of Peer Review Quality**

The in-depth interviews disclosed important concerns about the quality of peer review, as did the mail-back surveys. The literature review discusses studies of peer review at NSF that employ two ways of evaluating peer review quality: an intensive study of internal process and an external evaluation using independent reviews of previously reviewed work. Both these are beyond the time and resources available for this study. As an abbreviated measure, a sample of 421 paper review forms was evaluated for the extent (not quality) of reviewer comments. This sample was drawn from the 1998 paper review process (the 1998 papers included topics on economics, management, and environment). Appendix C offers a sample of TRB's current paper review forms.

### **Comparison of Practice with Other Journals**

For a comparison of practice, information was drawn from the 1987 CUTC study, as well as from general knowledge of practice at other journals that was supplied through conversation with other transportation professionals.

## **FINDINGS**

### **In-Depth Interviews**

Of the six people interviewed, four felt that TRB publication had less value for tenure and promotion, one felt that it had greater value, and one felt that opinions were mixed in their institution. Practical examples of problems encountered were offered, for example, people whose tenure or promotion had been denied or delayed because their research was almost exclusively published through TRB. Reasons for the lower status of TRB publication

centered on several themes that reappear in the mail-back survey—lack of knowledge about TRB among non-transportation faculty, low number of citations of TRB-published papers in other published research, poor or uneven quality of paper review, favoritism and bias among committee members and chairs, and TRB’s practitioner orientation.

A number of the interviewees felt that a key problem with TRB’s peer-reviewed publications lies in the unfounded negative perceptions among non-transportation academicians. They suggested that this might be remedied by a strong and continued communication effort that emphasizes the rigor of the review process, the high paper rejection rate, and the association of TRB with the National Academy of Sciences. Another common suggestion was that TRB paper review may never be as strong as that of other journals due to the presence of practitioners among reviewers; however, also noted was that the mix of practitioners is a strength of TRB and should not be changed.

As shown by the following mail-back survey results, the in-depth interview group is a non-representative sample. The interviews, however, were of great value for the insight they provided into concerns about aspects TRB paper review and publication.

### Mail-Back Survey

Of the 87 responses to the survey, 42 had 0–10 graduate students, 32 had 11–40 graduate students, and 9 had more than 40 students; 4 of the responses did not answer this question. Sixty-seven of the schools were public (77 percent) and 20 were private (23 percent).

The respondents were experienced with TRB’s paper review process. Eighty-four of them had authored a TRB peer-reviewed paper, and 79 had been paper reviewers. Twenty-nine of respondents (33 percent) were presently or previously TRB committee chairs. This is significant, as committee chairs select paper reviewers and, based on the reviews, make recommendations for presentation and publication of papers.

Table 1 summarizes responses to the question that asks how TRB publication compares with publication in other peer-reviewed journals for tenure and promotion. The questionnaire offered three responses: “greater value,” “same value,” or “less value.” A number of respondents checked “same value,” but their following comments indicated a fourth answer: the respondent feels that the survey has the same value, but others in the department or college may not agree.

Following are examples of comments from respondents who checked “same value” but were placed in the fourth category:

- “Some view TRRs as proceedings. The department recognizes them as peer reviewed, but this is not necessarily true at the college level.”
- “...journals of ASCE are more universally recognized, therefore, they may carry slightly more value.”
- “...I believe that TRB papers have the same or greater value, but it is hard to convince faculty from other disciplines about that.”
- “There are a few faculty and administrators who would accord it less value, but I believe they are in a minority.”

This new category seems warranted as a marker for schools where there is not agreement on the value of TRB publication.

Overall, 73 percent of respondents felt that TRB publication had the “same value” or “greater value” than publication in other journals, and 27 percent perceived TRB publication as having “less value.” A more detailed breakdown is 57 percent of respondents believe unequivocally that TRB has the same or greater value, 16 percent lean toward the same value but have a divided opinion, and 27 percent believe TRB has less value. Hence, a clear majority of the universities with transportation programs accord TRB publication the same or greater value for tenure and promotion.

To explore reasons for variation among schools in the value placed on TRB publication, the “value of publication” data were cross-tabbed against these variables: number of transportation students at the school, type of school (public or private), and degree of respondents’ TRB experience. The percentages of the “greater value,” “same value,” and “less value” responses showed little change when these variables were considered, so no tests of significance were performed. Variation appears related to other factors not identified in this survey.

At some schools TRB publication is believed to have less value. The reasons for this may be impossible to influence, or conversely, may provide valuable insights into how the TRB paper review and publication process can be improved. Survey question 4 asked for the basis of the assessment. Table 2 summarizes the responses. Thirty-five respondents stated that the basis of their assessment was personal experience; many of them expanded on these comments. The next most common comment was “Unqualified referees/weak or uneven peer reviews,” followed by “TRR’s perceived as conference proceedings” and “Peer-reviewed publications have equal value.” These comments were made 11, 10, and 10 times respectively, and in each case most of these respondents believe that TRB publication has less value. The next most common response was “Committees are biased toward members, friends, and well-known researchers.”

The final question asked for suggestions on how the TRB paper review process might be improved. The results are in Table 3. Seventeen respondents suggested “improved peer review process, including higher standards for referees and more consistency among committees.” Eleven respondents said that better publicity and outreach are needed. Ten respondents indicated that no change is needed. Eight respondents suggested introducing double-blind review. A number of other useful suggestions are shown on Table 3.

**TABLE 1 How Does TRB Publication Compare with Other Peer-Reviewed Journals?**

<b>Evaluation</b>	<b>Responses</b>	<b>Percent</b>
Greater Value	3	4
Same Value	46	53
Same Value (comments note some believe less value)	14	16
Less Value	24	27
<b>Total</b>	<b>87</b>	<b>100</b>

**TABLE 2 Reasons for Assessment of Paper Review Process**

<b>Evaluation</b>	<b>Total</b>
Personal experience	35
Unqualified referees/weak or uneven peer reviews	11
TRR's perceived as conference proceedings	10
Peer-reviewed publications have equal value	10
Committees are biased toward members, friends, and well-know researchers	7
Individuals have different views	5
Too oriented to practitioners	5
ASCE has more value	5
Applied research has value	3
TRB not in Science Citation Index	3
Problem is perception	2
TRB not perceived as archival	2
Limit on how many papers published cuts out good papers for some committees	2
Papers published to fill issues	1
Excellent review process	1
Small number of academicians on TRB Executive Committee	1
Transportation is not a core academic discipline	1
TRB has value equal to other journals	1

**TABLE 3 Evaluation of TRB Paper Review Process**

<b>Evaluation</b>	<b>Responses</b>
Improved peer review process, including higher standards for referees and consistency among committees	17
No change needed	10
Better publicity and outreach	11
Add double-blind review	8
Ensure that some academics review all papers	7
Rigorous review of revised submissions	6
More time to review papers	5
Increase number of papers published/publish all that are qualified	4
Change name of TRR	3
Time to publish should be shortened/solicit throughout year	3
At Annual Meeting only present papers to be published	2
Relax paper length restrictions	2
Use citation index	2
More time for review process	2
Improve format of TRR, make it a periodical	2
Opportunity for undergraduates	1
Get rid of review form	1
Funding agencies have too much influence	1
All reviews need to provide substantive comments	1
Improved visual aids at annual meeting	1
Send papers to correct committees	1
Adopt electronic review	1
Need an appeals process	1
Don't ignore reviewers who reject a paper	1
More emphasis on research, less on applications	1

## Peer Review Quality

A sample of 421 paper reviews from 1998 was inspected to determine extent of comments. (See Form B in Appendix C.) The method was simple, designed to identify reviews where the reviewer did not fully explain the basis for the judgement offered on the paper. Table 4 shows the results. Of 421 reviews, 82 percent appear to provide reasonably full discussion by the reviewer. Fourteen percent had cursory comments (three sentences or less), and 4 percent had no comments. It may be possible that in cases where the reviewer provided few or no comments, the paper was judged to be almost perfect, but perfection is not common among research paper submissions.

**TABLE 4 Review of TRB Paper Review “Form B”**

<b>Reviewers Provided:</b>	<b>Number of Papers</b>	<b>Percent</b>
No comments	15	4
Cursory comments*	59	14
Full discussion	347	82
<b>Total</b>	421	100

\*Three sentences or less

## Comparison of Practice with Other Journals

The 1987 CUTC Survey of Transportation Journals (Hauser, Hicks, Morlok, and Shofer) documented differences between TRB publication procedures and those of other journals. Three TRB characteristics were felt to be associated with lower quality procedures:

- Shorter review period,
- Higher acceptance rate, and
- Need for better review of revised papers.

Of these three qualities, the acceptance rate has changed the most dramatically, decreasing from more than 70 percent in 1986 to less than 40 percent in 1999. The other two differences, short review period and less attention to revision, continue to be valid reasons for concern.

## Analysis of Findings

A survey of TRB’s academic clients finds that a majority believe TRB publication has value equal or greater than publication in other peer-reviewed journals for tenure and promotion purposes. Twenty-seven percent believe that TRB has less value, and 16 percent report that opinion on the subject is divided in their department or college. A peer review quality analysis shows that 18 percent of the reviews did not provide much information to

the paper author. Comparison with practices at other peer-reviewed journals shows that TRB has improved substantially by lowering its paper acceptance rate. Considering two other measures of quality—time allotted for review and attention to revision—improvement may be needed.

Comments from the mail-back survey indicate that many academicians are reasonably satisfied with the review and publication process. Many also suggest ways in which the process could be improved without radical restructuring.

These findings indicate that the process is fundamentally sound and would benefit from some procedural upgrades; however, it is not in need of a major overhaul.

## **RECOMMENDATIONS**

The evaluation has disclosed areas of the TRB paper review and publication process where changes could improve the quality of papers published, utility of the publications, and client satisfaction. Adoption of any changes must be weighed against possible negative impacts or demands on resources. Following are some options to be considered.

### **Provide Information on TRB Publication Procedures**

A number of mail-back survey respondents and most of those contacted for in-depth interviews noted that the TRB paper review and publication process is sound, but not properly understood in the academic world outside the transportation community. For example, there are many who believe that TRRs are conference proceedings or in other ways not genuinely peer-reviewed publications. The connection between TRB and the National Academy of Sciences is also not well understood. Therefore, it is recommended that a brief description be prepared of what TRB is and how its paper review process works. This document should be kept current and disseminated annually to universities with transportation programs. This is a low-effort activity that may have a considerable impact.

### **Increase Time for Paper Review**

Currently, one month (from August 15 to September 15) is allotted for paper reviewers to complete their reviews (Information and Operational Guide, TRB, 1999). In actuality, this period may be shorter than expected due to postal delays and reviewers' vacation and travel. Increasing the review period to two months would enhance the overall quality of review and facilitate revision and re-review of revisions. The current review dates are associated with the requirements for TRB's annual meeting. The annual meeting always occurs in January, so it is not possible to extend the review period forward. A 30-day increase could therefore only be accomplished by moving the paper due date from August 1 to July 1. This would have no obvious impact on TRB's internal operations. The most likely negative impact would be on academic paper authors who need the summer months to complete their writing. This recommendation needs to be discussed by TRB's committees and councils.

Another option for increasing review time might be afforded by the introduction of electronic paper review. The current flow of paper review communication is authors' papers to TRB, papers to committee chairs, papers to reviewers, reviews to committee

chairs, committee chair recommendations to TRB. Most of the steps in this communication chain are currently accomplished by U.S. mail. If mail were replaced by electronic, Internet communications, there should be additional time available for the actual review.

### **Improve Instruction, Training, and Feedback for Paper Reviewers**

Paper reviewers are selected by TRB committee chairs from the members and affiliates of the committee. This process inadvertently may engage reviewers who have necessary technical expertise but are inexperienced in paper review. In some cases, new committee chairs also may have little experience with paper review. Instructions for reviewers are now given by a cover letter, on the review form itself (Appendix C), and through any information the committee chair may provide. It is recommended that a more complete guide for reviewing papers, along the lines of TRB's Information for Authors (1999), be created. This "Information for Paper Reviewers" would include guidance for committee chairs on how to manage the process. The document should be available on the Internet and would provide another piece of tangible evidence of the rigor of the paper review process to help persuade doubters. The resource costs to implement this recommendation are primarily those of writing the document.

Another possible improvement is to provide reviewers information on the fate of the papers they reviewed and the (blinded) comments from other reviewers. DeBakey in *The Scientific Journal* (1976) recommends this feedback as a common courtesy and a way to better engage reviewers in the process. This would require an extra mailing but might become more feasible with the adoption of electronic review.

### **Improve Paper Revision Process**

Currently authors revise papers in the fall following the initial review. Papers are then returned to committee chairs to ensure that appropriate revisions have been made. This process also could be improved. For example, revised papers could be returned to original paper reviewers with a brief re-review form; this could strengthen the review process. Potential issues include whether or not there is enough time to accommodate re-review, and whether the volunteer reviewers will have the willingness to take on the extra work.

### **Adopt Double-Blind Review Procedure**

Currently the review process is single blind; paper authors do not know who reviewers are. In the double-blind process, paper authors do not know who reviewers are, and reviewers do not know who paper authors are. Double-blinding is claimed to reduce bias toward or against prestigious institutions, prominent researchers, friends (or enemies) of the reviewer, and TRB co-committee members. Nonetheless detractors say that it is often possible to discover the author through the content of the paper.

The literature review for this paper illustrated that paper peer review procedures for journals were established piecemeal, which helps explain why some journals and disciplines consider double-blind review to be the standard and others do not. The literature also points to an endemic perception among paper authors (or grant proposers) that the review processes are biased by "old-boy" networks. This perception, true or false, is fed by the closed nature of peer review.



TRB's paper review is unique among transportation journals in that it is conducted through standing committees, many of whose members also submit papers. This study finds no evidence of bias in the TRB review process, but there are certainly concerns expressed by clients that there might be bias, particularly due to the TRB committees' direct involvement in paper review. Although double-blind review is not common practice for transportation journals, it should be strongly considered for TRB to help eliminate any appearance of bias. At the moment, implementation of this recommendation would require additional resources, as multiple copies of papers received from each author would have to be "blinded," and review forms and procedures revised. In the future TRB intends to switch to an electronic review process; this might allow for easier implementation of double-blind review, which also should be considered.

### Citation Indexes, Research Availability

Peer-reviewed publication is only one measure of research quality and relevance. Incidence of citations in others' work is a measure that is more directed at research outcomes and used as a guide for tenure and promotion decisions. Until recently, TRB publications were not included in the citation indexing of the Institute for Scientific Information. It should be determined whether there are other indexes of which TRB publications should be part—if appropriate, then they should be added. In addition, it would be useful to find out whether any improvements can be made in user accessibility at major university and other research libraries.

### Ongoing Review and Improvement

Transportation research paper review and publication is a cornerstone of TRB's activities. In addition to snapshot evaluations (like this one), it would be useful to have an ongoing process that addresses improvements and emerging issues. While TRB staff does provide an internal element of this process, an external element would be useful. One potential solution might be for TRB's Committee on Education and Training and Committee on Conduct of Research to form a joint paper review subcommittee that would—under the guidance of the Group Councils and Division A Council—provide ongoing, external advice on the paper review and publication process.

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## **APPENDIX A**

### **TELEPHONE INTERVIEW QUESTIONNAIRE**

## **TRB Peer-Reviewed Paper Process Evaluation Interviews**

**Person:**

**Institution, Department, Program, # of Graduate Students:**

**Title and Responsibilities:**

**Past and Present Involvement with TRB and the Paper Review Process (including papers published):**

**Does Publication in a TRB Transportation Research Record Carry the Same Weight as Other Professional Journals for Junior Faculty and Researchers for Tenure and Promotion?**

**If Not, What Are the Reasons?**

**Might this Question be Rephrased, if You Completed a Research Project with Significant Findings for Transportation, Would You Select TRB as the Place for Peer Review and Publication? (If Not, Why Not?)**

**What Other Journals Carry Greater or Equal Weight for Publication?**

**How Might the TRB Paper Review and Process be Improved?**

## **APPENDIX B**

### **MAIL-BACK SURVEY**

**Evaluation of TRB Paper Review Process:**

*(all answers will be confidential)*

- 1. Number of transportation graduate students currently enrolled in your university:**

Master's \_\_\_\_\_ Ph.D. \_\_\_\_\_

- 2. Your past and present involvement with TRB** *(check as applies):*

Group Council Chair \_\_\_\_ Section Chair \_\_\_\_ Committee or Task Force Chair \_\_\_\_  
Paper Reviewer \_\_\_\_ Paper Author \_\_\_\_

Other *(explain)* \_\_\_\_\_

- 3. For tenure and promotion in your College or Department, how does publication in a TRB *Transportation Research Record* (TRR) compare with publication in other peer-reviewed publications?** *(check one)*

TRR has greater value \_\_\_\_ TRR has the same value \_\_\_\_ TRR has less value \_\_\_\_

- 4. Please describe the basis for your assessment in question #3:**

*(If necessary, use reverse side or attach pages)*

- 5. Regardless of how you answered question #3, how might the TRB paper process be improved, including peer-review, acceptance, and publication?**

*(If necessary, use reverse side or attach pages)*

- 6. Other comments?**

*(Please mail this back to TRB by May 15, 1999, using the enclosed, stamped envelope.)*

## **APPENDIX C**

### **TRB PAPER REVIEW FORMS**

**Transportation Research Board  
National Research Council**

TRB Paper No. \_\_\_\_\_

## PAPER REVIEW: FORM A

Author(s) \_\_\_\_\_

Title of Paper \_\_\_\_\_

Committee \_\_\_\_\_ Chair \_\_\_\_\_ Phone \_\_\_\_\_

Reviewer \_\_\_\_\_ Phone \_\_\_\_\_ Date \_\_\_\_\_

REVIEWER: The care and thoroughness of your review are the foundations of the quality of TRB Records and the TRB Annual Meeting. Please take the time and effort in your review to serve the author(s) and TRB well. ***Please contact the committee chair immediately if the topic is outside your area of expertise or if you cannot meet the deadline for review comments.*** Please fill out and return ***two copies*** of Form A (and the ***manuscript*** if it contains review comments) to the committee chair, who will forward one copy to the TRB staff representative. ***Do not send a copy of this form to the author(s).***

The following information will be used to reach decisions on presentation and/or publication. Please include detailed comments on Form B regarding specific flaws that must be corrected.

Rating for Presentation:

\_\_\_ 1. Excellent \_\_\_ 2. Good \_\_\_ 3. Fair \_\_\_ 4. Poor

Rating for Publication in a TRB Record:

\_\_\_ 1. Excellent \_\_\_ 2. Good \_\_\_ 3. Fair \_\_\_ 4. Poor

Publication Recommendations:

- \_\_\_ 1. Publish as is or with minor modifications
- \_\_\_ 2. Request major revision and re-review
- \_\_\_ 3. Reject

Is paper an award candidate?

- \_\_\_ 1. Yes
- \_\_\_ 2. Perhaps
- \_\_\_ 3. No

## NOTE:

WordPerfect and Word versions of this form are available at [www.nas.edu/trb/meeting2000](http://www.nas.edu/trb/meeting2000)

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COMMITTEE COPY

REVIEWER COPY



**Transportation Research Board  
National Research Council**

TRB Paper No. \_\_\_\_\_

PAPER REVIEW: FORM B

Author(s) \_\_\_\_\_

Title of Paper \_\_\_\_\_

REVIEWER: Please provide detailed comments on this form. Return **three copies** of Form B (and the **manuscript** if it contains review comments) to the committee chair, who will forward one copy to the TRB staff representative. The committee chair will send the corresponding author a copy of this form or a summary of information submitted by all reviewers; **in no case will the reviewers be identified.**

Attach additional pages to provide specific comments that

- 1) Support your Form A recommendations,
- 2) Explain any "no" entries shown below,
- 3) Help the author(s) improve the paper,
- 4) Identify which flaws **must** be remedied, and
- 5) Indicate if you are aware of publication of this paper elsewhere.

Review criteria ( <b>presentation and publication</b> ):	YES	NO
1) Significant contribution to state-of-the-art or practice .....	_____	_____
2) Content of the paper is original and timely .....	_____	_____
3) Coverage of the subject is complete and well organized.....	_____	_____
4) Data are valid and research methods are appropriate .....	_____	_____
5) Conclusions are valid and properly supported.....	_____	_____
6) Paper is useful to practitioners .....	_____	_____
7) Paper is useful to researchers.....	_____	_____
8) Free of sensitive statements advocating special interests, advertising, and government policies and programs .....	_____	_____

Additional criteria for **publication**:

- 9) Abstract conveys the meaning of the paper .....    \_\_\_\_\_    \_\_\_\_\_
- 10) Written in simple, concise, and effective language .....    \_\_\_\_\_    \_\_\_\_\_
- 11) Long-term value as a research reference or as a description of  
Practice .....    \_\_\_\_\_    \_\_\_\_\_
- 12) Final report on the study (not interim or task reports) .....    \_\_\_\_\_    \_\_\_\_\_
- 13) Subject of interest to a large audience .....    \_\_\_\_\_    \_\_\_\_\_

COMMENTS (add additional pages as necessary):

NOTE:

WordPerfect and Word versions of this form are available at [www.nas.edu/trb/meeting2000](http://www.nas.edu/trb/meeting2000)

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## **APPENDIX D**

### **MANAGING THE PEER REVIEW PROCESS**

The following is adopted from *The Scientific Journal: Editorial Policies and Practices* (DeBakey, 1976). DeBakey's book includes suggested "guidelines for reviewers," not shown below.

- What is the optimum number reviewers for each paper? Two or three are recommended.
- Should reviewers be identified to authors? Only if the reviewer chooses to sign his or her name.
- Should the author's identity be concealed from the reviewer (double-blind review)? This is not recommended since most papers are said to contain sufficient internal evidence to allow identification of the author.
- Are reviewers paid? The opportunity to evaluate papers is a "professional responsibility and an honor," thus no pay is required.
- How much guidance should the editor provide the reviewers? Detailed instruction should not be needed for veteran reviewers, but may be helpful for first-time reviewers.
- Should reviewers be allowed to pass manuscripts to colleagues to review? Yes, but only with permission of the editor.
- Should reviewer-detailed comments be sent to the author? Yes, these should be sent with the decision letter.
- Should reviewer comments sent to the author be edited? Only if necessary to remove offensive wording.
- Should reviewers be informed whether the paper was accepted? Yes.
- Should reviewers see comments of other reviewers? Yes.